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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/814,343

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Yoshiaki Sakagami

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EXAMINER

RICE, ELISA M

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/814,343	Applicant(s) SAKAGAMI ET AL.	
	Examiner ELISA M. RICE	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 21, 2007 has been entered.

Response to Arguments

Applicant's arguments with respect to claims 1-6 have been considered but are moot in view of the new ground(s) of rejection.

Declaration Under 37 CFR 1.131

The Declaration filed on January 7, 2008 under 37 CFR 1.131 has been considered but is ineffective to overcome the Higaki reference (2004/0028260 A1). The evidence submitted is insufficient to establish diligence from a date prior to the date of

reduction to practice of the Higaki reference (2004/0028260 A1) to either a constructive reduction to practice or an actual reduction to practice. Applicant merely asserts exercising due diligence in the Declaration under 37 CFR 1.131 filed on January 7, 2008. However, as stated in the MPEP 715.07(a), "where conception occurs prior to the date of the reference but , but reduction to practice is afterward, it is not enough merely to allege that applicant or patent owner had been diligent Ex parte Hunter, 1189 C.D. 218, 49 O.G. 733 (Comm'r Pat. 1889). Rather, applicant must show evidence of facts establishing diligence."

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Higaki et. al. (US 2004/0028260 A1), in view of Kuno (5,802,494).

In Regards to Claim 1:

Higaki discloses an image transmission system for a mobile robot, comprising:
a camera for capturing an image as an image signal (“employing 2-color CCDs, with L and R denoting the left side camera and the right side camera respectively”, Higaki, paragraph 41; Higaki, Figure 1, 1L and 1R).

a microphone for capturing sound as a sound signal (“reference symbol 21 denotes a microphone that picks up the voice of a person speaking”, Higaki, paragraph 41; Higaki, Figure 1, 21)

human detecting means for detecting a human from the captured image and/or sound (“characteristic features such as the face and the hands of a person can be detected from the extracted outline information”, Higaki, paragraph 13 and “voice recognition section which recognizes the content of the utterance picked up by the microphone”, Higaki, paragraph 41).

a power drive unit for moving the entire robot toward the detected human (“a drive control section”, Higaki, paragraph 41; Higaki, Figure 1, 9);

an image cut out means for cutting out an image of the detected human according to information from the camera ("reference symbol 54 denotes an outline extraction section which extracts an outline"; Higaki, Figure 1, 54) ; and wherein the human detecting means comprises:
means for detecting a moving object as a human from the image signal obtained from the camera (Higaki, Fig.1, num. 58 and 59);
means for extracting an outline of the moving object (Higaki, Fig. 1, num. 54);
means for extracting a face inside the outline of the moving object (Higaki, Fig. 6, S33);
means for detecting a position of a hand by searching for a skin color area other than the face inside the outline of the moving object (Higaki, Fig. 6, S35);
means for recognizing a gesture and/or posture of a human based on a positional relationship between the face and the hand (Higaki, Fig 6, S36 based on positional information gleaned from S33 and S35); and
means for detecting a human according to the gesture and/or posture ("Reference symbol 71 denotes a setting file in which the relationships between human postures and corresponding instructions are pre-defined. Reference symbol 72 denotes a face database in which human facial recognition information is predefined. Reference symbol 8 denotes a memory which stores the data necessary for posture recognition.", Higaki, paragraph 41).

Higaki does not disclose an image transmitting means for transmitting a human image to an external terminal.

Kuno (5,802,494) teaches an image transmitting means for transmitting a human image to an external terminal (“and the signals showing the subject’s image are transmitted to a CRT display installed in a monitor room”, column 1, lines 60-62, “the image of the subject’s head is extracted from the input image (Figure 11A)”, column 9, lines 43-44)

It would have been obvious at the time of the invention to a person of ordinary skill in the art to combine the image transmission system for a mobile robot with the elements as disclosed by Higaki with an image transmitting means for transmitting a human image to an external terminal taught by Kuno in order to monitor an individual from a remote location (“The CRT display displays the image of the subject, whereby a physician in the monitor room can observe the subject”, Kuno, column 1, lines 22-24)

Claims 2, 4, 5, 6, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Higaki et. al. (US 2004/0028260 A1) and Kuno (5,802,494) as applied to claim 1.

Regarding claim 2, the combination of Higaki and Kuno teaches an image transmission system according to claim 1, wherein the system is adapted to determine

that the moving object is a human from color information of the moving object ("make an area inside the outline having a predetermined color a candidate for a hand of a person", paragraph 17, "denotes a face recognition section which recognizes a person's face from the color image, the skin-color area image", paragraph 19)

Regarding claim 4, the combination of Higaki and Kuno discloses an image transmission system according to claim 1, further comprising means for monitoring state variables including a current position of the robot; the image transmitting means transmitting the monitored state variables in addition to the cut out human image (FIG. 28 is a diagram illustrating how to determine the position of the robot, column 3, lines 16-17, "The physician looks at the subject's face being displayed on the display of the monitor console and also checks the physical conditions being displayed on the other displays of the console, in order to decide what he or she should do for the subject.", column 5, lines 26-30, "the circuit 40 starts transmitting the image data representing the image of the subject, to the monitor section 2", column 5, lines 14-16, "Meanwhile, the electronics sensors 33 installed in the sickroom, such as the hemodynamometer and the electrocardiograph, both attached to the subject, output diagnosis signals, representing the physical conditions of the subject. The video signals and the diagnosis signals are input to the signal processor 32 incorporated in the data-processing/control section 4. The processor 32 processes these input signals, thereby generating image data and diagnosis data. The image data and the diagnosis data are supplied to the

abnormality decision circuit 34 incorporated in the robot 5.”, Kuno, column 5, lines 10-20)

Regarding claim 5, the combination of Higaki and Kuno discloses an image transmission system according to claim 1, wherein the system is adapted to have the robot direct the camera toward the position of the detected human (“obtains the pan angle and tilt angle of the cameras 1L and 1R (step S81). The line of sight instruction section sends the obtained pan angle and the tilt angle to the action control section 9 (step S82). As a result, the cameras 1L and 1R always come to face the direction of the head of the person who issues the instruction “come”, it becomes possible to track the person”, Higaki, paragraph 94)

Regarding claim 6, the combination of Higaki and Kuno discloses an image transmission system according to claim 1, wherein the system further comprises means for measuring a distance to the detected human according to the information from the camera, and providing a target of a movement to said mobile robot (“a distance calculation device that calculates a distance to the body being the candidate, from distance information of each pixel within the outline in the image”, paragraph 12 and “the movement instruction section 64, based on the moving object data 90, tracks the person who instructed “come” (step S95)”, Higaki, paragraph 95).

Regarding claim 7, the combination of Higaki and Kuno discloses an image transmission system according to claim 1, wherein the image cut out means cuts out a portion of the image so that the portion of the image includes an image of the detected human, and the image transmitting means transmits only the cut out portion of the image to the external terminal (“and the signals showing the subject’s image are transmitted to a CRT display installed in a monitor room”, Kuno, column 1, lines 60-62, “the image of the subject’s head is extracted from the input image (Figure 11A)”, Kuno, column 9, lines 43-44).

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Higaki et. al. (US 2004/0028260 A1) and Kuno (5,802,494) as applied to claim 1 above, and further in view of Shinichi (2000-326274).

In Regards to Claim 3:

While the Higaki Kuno combination discloses a microphone as described above, the Higaki and Kuno combination does not teach determining a direction of a sound source from the sound signal obtained from the microphone.

However, Shinichi does teach a system, in the same problem solving area of locating a source of sound, that detects the direction of a sound source (“direction of a sound source is detected”, paragraph 5).

It would have been obvious at the time of the invention to a person of ordinary skill in the art to combine the image transmission system for a mobile robot with the elements as disclosed by Higaki and Kuno in the claim 1 discussion above with a system as taught by Shinichi that is adapted to determine a direction of a sound source from the sound signal obtained from the microphone because this directional information provided by the sound signal allows the robot an additional way to be able to locate the person (“turned the robot in this direction” paragraph 5 of Shinichi and “person retrieval processing” paragraph 5 of Shinichi).

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Higaki et. al. (US 2004/0028260 A1) and Kuno (5,467,403) as applied to claim 1 above, and further in view of Ishii (6,278,904).

In Regards to Claim 4:

Higaki, as part of the Higaki and Kuno combination applied to claim 1 above, teaches means for monitoring state variables (“the person information map 10 defines the relative position between the person and the autonomous relative position between the person and the autonomous robot R, in order to grasp where the person issuing instructions currently is. The person information map 110 includes: an individual person ID 111 for uniquely specifying persons, a relative position to self 112, a face object ID 113, and individual person ID 114, a posture ID 115, a moving object ID 116, a face

position coordinate 118 in the real space, a hand position coordinate 119, a distance to self 120, a relative angle to self 121, an outline contact point coordinate 122, and a head vertex point coordinate 123”, paragraph 87, “the operation for renewing the person information map in the object integration section 62 is described with reference to Figure 15”, paragraph 88 and “the operation for renewing the person information map in the object integration section 62 is described with reference to Figure 15”, paragraph 88).

Higaki does not disclose an image transmitting means transmitting the monitored state variable including current position of the robot.

Ishii does disclose an image transmitting means transmitting the monitored state variables including the current position of the robot (“In the first embodiment, the information captured through the image sensor 11 and the audio sensor 12 is used for the purpose of detecting a current position of the robot 10 in order for the robot 10 to move around all objects to be monitored or to monitor a specified object. The information captured through the image sensor 11 and the audio sensor 12 is also stored in the robot 10, or transferred externally through the communications device 19 and stored in an external device, as the monitoring data”, column 5, lines 10-15).

It would have been obvious at the time of the invention to a person of ordinary skill in the art to combine the image transmission system for a mobile robot with the elements

as disclosed by Higaki and Kuno in the claim 1 discussion above with an image transmitting means transmitting the monitored state variables including current position of the robot as taught by Ishii, in order to be able to observe a predetermined object and keep track of its location and other state variables of interest (“detecting a current position of the robot 10 in order for the robot to move around all objects to be monitored or to monitor a specified object” and “the information captured through the image sensor 11 and the audio sensor 12 is also stored in the robot 10, or transferred externally through the communications device 19 and stored in an external device, as the monitoring data”, Ishii, column 5, lines 10-15).

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Higaki et. al. (US 2004/0028260 A1) and Kuno (5,467,403) as applied to claim 7.

Regarding claim 8, the combination of Higaki and Kuno discloses an image transmission system according to claim 7, wherein the image cut out means cuts out the portion of the captured image so that the portion of the image includes a face image of the detected human wherein the face image of the detected human occupies a substantially entire area of the cut out portion of the image (“and the signals showing the subject’s image are transmitted to a CRT display installed in a monitor room”, column 1, lines 60-62, “the image of the subject’s head is extracted from the input image (Figure 11A)”, column 9, lines 43-44).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elisa M. Rice whose telephone number is (571)270-1580. The examiner can normally be reached on 8:00a.m.-5:30p.m. EST Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian P. Werner can be reached on (571)272-7401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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2609

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